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**Zhao et al.**

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(54) **METHODS FOR CONVERSION OF  
CARBOHYDRATES IN IONIC LIQUIDS TO  
VALUE-ADDED CHEMICALS**

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patent is extended or adjusted under 35  
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claimer.

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See application file for complete search history.

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(57) **ABSTRACT**

Methods are described for converting carbohydrates includ-  
ing, e.g., monosaccharides, disaccharides, and polysaccha-  
rides in ionic liquids to value-added chemicals including  
furans, useful as chemical intermediates and/or feedstocks.  
Fructose is converted to 5-hydroxymethylfurfural (HMF) in  
the presence of metal halide and acid catalysts. Glucose is  
effectively converted to HMF in the presence of chromium  
chloride catalysts. Yields of up to about 70% are achieved  
with low levels of impurities such as levulinic acid.

**10 Claims, 6 Drawing Sheets**